MEANS FOR ISOLATING PLASTER AND CEILING JUNCTURES

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This invention relates to a means for isolating plaster wall and ceiling junctures and more particularly to a means for isolating plaster wall and ceiling junctures which prevent cracking of the plaster in a building room wherein the ceiling is suspended from a flexible overhead floor or other structure which deflects vertically and causes relative movement between the plaster of a building room ceiling and the plaster on the walls or wall partitions thereof.

In conventional building structure it has become common practice to construct multiple story buildings by utilizing steel reinforced concrete slabs to span areas between vertical walls and, thereby, provide superimposed floors beneath which ceiling structures for rooms immediately therebelow are suspended. Thus, the ceiling structures are located to the bottom portions of these concrete slab floors of the story directly above such ceilings. These suspended ceilings are, thus, vertically movable in accordance with the vertical deflection of the slab floors which support such ceilings. In this structure, cracking has heretofore occurred between the plaster of such suspended ceilings and stationary walls therebelow. Such cracking has been caused by vertical deflection of the slab floor structures which permit the ceiling suspended therefrom to move up and down and in such structures where the plaster of the movable ceiling is integral with plaster of upstanding walls and partitions, considerable cracking has occurred in the plaster and has caused substantial damage and maintenance costs for repairing such damage.

Accordingly, it is an object of the present invention to provide a means for isolating plaster walls and ceiling junctures which is very simple and economical of construction and which readily permits slight movement between the plaster on a movable ceiling and the plaster on an upstanding stationary wall.

Another object of the invention is to provide a novel channel structure having three separate channel portions for use in studding and plaster wall construction to provide edge finished structure for walls or partitions and for maintaining juxtaposition of the plaster relative to the studding wall and for isolating the edges thereof with respect to adjacent structures.

Another object of the invention is to provide a novel one piece channel structure having three separate channels, the intermediate one of which supports studding and the outermost ones of which support lath and plaster; resilient clips engageable with the outermost channel flanges and adapted to support lath adjacent studding in the innermost channel during application of plaster to the lath, thereby, greatly facilitating the assembly of lath and plaster relative to various kinds of wall studding.

Other objects and advantages of the invention may be apparent from the following specification, appended claims and accompanying drawings in which:

FIG. 1 is a fragmentary vertical sectional view through a building partition or wall structure and suspended ceiling located thereabove; said suspended ceiling being suspended from a deflectible floor structure thereabove;

FIG. 2 is a fragmentary horizontal sectional view of a studding wall structure of the present invention shown with a channel structure of the invention vertically disposed and abutted to a masonry wall or other structure;

FIG. 3 is a cross-sectional view of a channel or wall track structure of the present invention;

FIG. 4 is a fragmentary view of the structure shown in FIG. 3 and taken from the line 4—4 of FIG. 3;

FIG. 5 is a reduced elevational view of a partition illustrating by broken lines, walls and ceiling of a room therearound and showing the channel structure disclosed in FIG. 3 on upper horizontal portions and vertical edge portions of the partition and arranged with relation to the lath and plaster in a manner similar to that shown in FIG. 1;

FIG. 6 is a sectional view taken from the line 6—6 of FIG. 4, showing by broken lines and arrows the breaking out of the central portion of the structure and the folding back of tabs to provide an opening for a stud and to provide connection members for the channel structure;

FIG. 7 is a cross-sectional view of the base member, shown in FIG. 1, but omitting plaster and indicating by
broken lines, the insertion of a stud in a downward direc-
tion to fit into an opening formed by tabs in the
downwardly diverging portions of the base member;
and
FIG. 8 is plan sectional view taken from line 8—8 of
FIG. 1.
As shown in FIG. 1, a floor surface 10 supports a wall
or partition base structure 12 of the invention. This
structure 12 is formed of sheet metal and is formed of a
single piece of sheet metal comprising horizontal flanges
14 having vertical boardwall wall sections 16 integral therewith and extending vertically the planes of plaster at opposite sides of the wall. At upper portions 18 of these wall portions 16 the base structure
12 is provided with downwardly converging sheet metal
plate portions 20 which are provided with sheared out
tabs 22 forming an opening in the downwardly converging
portions 20 through which the lower end corner portions
24 of a metal stud member 26 is disposed. The lower end extremity 28 of the stud 26 rests upon the sheared out tabs 22 and these tabs 22 at their ends 30 overlap the portions 14 of the base structure 12.

The stud structure 26 may be of various structural
configuration and material, however, the preferred stud-
ning structure 26 is a conventional metal stud having an
upper end 30 and several of these studs 26 are disposed in
vertically arranged position and in parallel relationship
to each other, being spaced from each other laterally along the base structure 12. Upper end portions 30 of these stud structures 26 extend through openings 32 in channel structures generally designated 34. These channel
structures 34 are disposed at the upper ends of the
studs 30 and the openings 32 in the channel structure
34 are formed by sheared out portions 36 which leave
behind tabs 38 which are extended laterally as shown in
FIG. 1 of the drawings. Upper ends of the studs 26 are
installed in the openings 32 left by the bent out tabs 38.
These openings are in the web portions of the middle channel of the channel member of the invention, as shown in FIGS. 3 and 4, and also in FIG. 1 of the drawings, wherein the tabs 38 are shown bent laterally and secured and supported by the wires 42.

During installation, the normally upper end of each
stud 26 is pushed upward through the sheared out opening after the tabs 38 have been bent upwardly and laterally, as shown in FIG. 1 of the drawings. Thus, each stud 26 is pushed upwardly through the opening 32, in its respective position, and then the lower end 28 of the stud is moved laterally and downwardly between the inclined portions 20 of the base structure 12. Side end portions 24 of the stud 26, at its lower portion, are located in openings in the inclined portions 20 of the base structure 12, after the tabs 22 have been bent downwardly into the solid line position, as shown in FIG. 1, whereupon the lower end 28 of the stud rests upon these tabs 22 and the lower end of the respective stud is then held against movement longitudinally relative to the base structure, due to the fact that the openings blanked out from the inclined portions 20 hold the studs captive and prevent it from moving in the base structure. It will be
understood that when the respective stud 26 is forced downwardly through the openings left by removal of the tabs 22 that the upper end of the respective stud slides down-
wardly in the aforementioned opening 32 in the channel
structure 34 to a position generally, as shown in FIG. 1 of the drawings. The tabs 38 are subsequently secured to the stud 26 by tubing channel 16 of wires 42. The furring channels 40 by means of tie wires 44 are secured to runner channel structure 46 which is sus-
pended by tie wires 48 from a conventional concrete slab superimposed flooring 50 or other similar structure which may be subject to vertical movement or deflection as in FIG. 1.

In conventional building construction these superim-
posed floor slabs 50 are steel reinforced slabs and form floors of superimposed stories in buildings. When loaded, these floors 50 deflect, and accordingly, the channels 40 and 46 suspended therefrom, move up and down, carrying ceiling lath 52 and plaster 54 therewith. Thus, the plaster 54 moves vertically in accordance with the deflec-
tion of the floor slab 50.

The ceiling plaster 54 at its edge portions 56 adjacent
a wall designated B is isolated from the wall B so that
motion of the ceiling plaster 54 may take place rela-
tive to plaster 58 of the wall or partition B.
Each channel structure 34 as shown in FIG. 3 of the
drawings is provided with three channel sections 60, 62
and 64, the channel 34 being formed of a single sheet of
metal and having a first pair of flanges 66 defining op-
posite walls of the channel 62 and also forming walls of the second and third channels 60 and 64 which are
provided with additional flanges 68 and 70. Thus, the
channel structure of the invention is provided with four
flanges extending in the same direction and the first flanges 66 form common dividing walls for the three separate
channels.

The flanges 66 are disposed at opposite sides of the
studding 26 and support inner sides of conventional plaster lath 69 while the wall plaster 58 disposed on the outer sides 72 of the lath 69 is isolated from the ceiling plaster 54 by the flanges 68 and 70. Thus, these flanges 68 and 70 provide for a sliding or moving connection between the floor slab 50 and the wall plaster 58 on the lath 69. Thus, the lath and plaster is disposed between the flanges 66 and 68 and 66 and 70 and during the placement of the plaster 58, metal strips 74 are
wedged between the flanges 68 and 70 and the outer sides
72 of the lath 69 to hold the lath in proper position until
after the plaster 58 has been placed on the lath. Between the adjacent edges 76 of the lath, clips 78 are disposed and projected through openings 80 in the stud-
ing 26. A T-head section 82 of these clips 78 overlaps adjacent edges 76 of the lath 69 and, thus, holds adjacent panels of the lath in connection with the studs.

It will be obvious that plaster board or other paneling,
such as wood or the like, may be secured and held be-
tween the flanges 66 and 68 if desired; thus, taking the
place of the lath 69 and plaster 58.

Lower edge portions 84 of the lath 69 rest upon the
inclined portions 20 of the base 12 and, thus, these lower
dges are urged into close proximity with the studding 26.
The downwardly converging portions 20 of the base 12
are provided with openings which receive plaster during the application thereof to the lath 69, thus, the plaster is anchored to the base 12 and forms acoustical insulation therein.

When the channel structure 34 is used adjacent a
masonry wall as indicated at C in FIG. 2 of the draw-
ings, the lath 69 and the plaster 58 is supported by the
channel 34 in a similar manner to that shown in FIG. 1. However, the channel 34 shown in FIG. 2 is in a vertical position and adjacent the vertical face 86 of a wall C and, thus, the channel 34 isolates or separates the vertical edge of a wall D from the vertical surface 86 of the wall C.

The flanges 66, 68 and 70, all perform functions similar
to that shown in FIG. 1 with regard to the supporting of the lath 69 and the plaster 58 of a wall.
As shown in FIG. 5 of the drawings a wall 89 stands
in a building room between respective walls 90 and 92
below a ceiling 94. A horizontal upper portion of the wall 89 is disposed by a section of the channel structure 34 which is as shown in FIG. 3 without the partition 88. Thus, the channel 34 forms an upper structure for the wall while a vertical section of the channel structure 34 is disposed as shown in FIG. 2 to cover the standing vertical edge of the wall 88.

It will be obvious to those skilled in the art that the
flanges 66 and 70 as shown in FIG. 1 of the drawings provide an isolation structure between the ceiling plaster
54 and the wall plaster 55 so that the ceiling may move upwardly and downwardly relative to the wall 56 B without causing relative cracking of the plaster, neither the ceiling or the wall.

It will be obvious to those skilled in the art that various modifications of the present invention may be resorted to in manner limited only by a just interpretation of the following claims.

I claim:

1. In a means for isolating plaster wall and ceiling junctures the combination of: a building structure comprising upright partition walls and a ceiling; studding members in and between opposite sides of said walls; a channel member disposed at substantially right angles to said studding and engaging the upper ends thereof; three substantially U-shaped channel portions of said channel member being open in a downward direction and having four downwardly extending flanges in the same direction; and ceiling supporting structure suspending said channel member on said channel portions; an intermediate channel disposed between the other two of said three channel portions; a first pair of said four flanges spaced apart and forming first channel sides and common dividers between said intermediate channel portion and said other two channel portions; a second pair of said four flanges forming second sides for said other two channel portions; said first pair of flanges disposed at opposite sides of said studding members; a web of said channel member disposed between said first pair of flanges, said web having openings therethrough in which said studding members extend and in which they are laterally supported lath means adjacent said studding members and one of said first pair of flanges; wall plaster parallel with and adjacent to said lath means and one of said second pair of flanges; and ceiling plaster abutting to the outer surface of one of said second pair of flanges.

2. In a means for isolating plaster wall and ceiling junctures the combination of: a building structure comprising upright partition walls and a ceiling; studding members in and between opposite sides of said walls; a channel member disposed at substantially right angles to said studding and engaging the upper ends thereof; three substantially U-shaped channel portions of said channel member being open in a downward direction and having four downwardly extending flanges in the same direction; and ceiling supporting structure suspending said channel member one of said channel portions being an intermediate channel disposed between the other two of said three channel portions; a first pair of said four flanges spaced apart and forming first channel sides and common dividers between said intermediate channel portion and said other two channel portions; a second pair of said four flanges forming second sides for said other two channel portions; said first pair of flanges disposed at opposite sides of said studding members; a web of said channel member disposed between said first pair of flanges, said web having openings therethrough in which said studding members extend and in which they are laterally supported lath means adjacent said studding members and one of said first pair of flanges; wall plaster parallel with and adjacent to said lath means and one of said second pair of flanges; and ceiling plaster abutting to the outer surface of one of said second pair of flanges.

3. In a means for isolating plaster wall and ceiling junctures the combination of: a building structure comprising upright partition walls and a ceiling; studding members in and between opposite sides of said walls; a channel member disposed at substantially right angles to said studding and engaging the upper ends thereof; three substantially U-shaped channel portions of said channel member being open in a downward direction and having four downwardly extending flanges in the same direction; and ceiling supporting structure suspending said channel member one of said channel portions being an intermediate channel disposed between the other two of said three channel portions; a first pair of said four flanges spaced apart and forming first channel sides and common dividers between said intermediate channel portion and said other two channel portions; a second pair of said four flanges forming second sides for said other two channel portions; said first pair of flanges disposed at opposite sides of said studding members; a web of said channel member disposed between said first pair of flanges, said web having openings therethrough in which said studding members extend and in which they are laterally supported lath means adjacent said studding members and one of said first pair of flanges; wall plaster parallel with and adjacent to said lath means and one of said second pair of flanges; and ceiling plaster abutting to the outer surface of one of said second pair of flanges.

4. In a means for isolating plaster wall and ceiling junctures the combination of: a building structure comprising upright partition walls and a ceiling; studding members in and between opposite sides of said walls; a channel member disposed at substantially right angles to said studding and engaging the upper ends thereof; three substantially U-shaped channel portions of said channel member being open in a downward direction and having four downwardly extending flanges in the same direction; and ceiling supporting structure suspending said channel member one of said channel portions being an intermediate channel disposed between the other two of said three channel portions; a first pair of said four flanges spaced apart and forming first channel sides and common dividers between said intermediate channel portion and said other two channel portions; a second pair of said four flanges forming second sides for said other two channel portions; said first pair of flanges disposed at opposite sides of said studding members; a web of said channel member disposed between said first pair of flanges, said web having openings therethrough in which said studding members extend and in which they are laterally supported lath means adjacent said studding members and one of said first pair of flanges; wall plaster parallel with and adjacent to said lath means and one of said second pair of flanges; and ceiling plaster abutting to the outer surface of one of said second pair of flanges; said channel member being formed of single piece metal, said first pair of flanges comprising folded portions of said piece of metal.

5. In a means for isolating plaster wall and ceiling junctures the combination of: a building structure comprising upright partition walls and a ceiling; studding members in and between opposite sides of said walls; a channel member disposed at substantially right angles to said studding and engaging the upper ends thereof; three substantially U-shaped channel portions of said channel member being open in a downward direction and having four downwardly extending flanges in the same direction; and ceiling supporting structure suspending said channel member one of said channel portions being an intermediate channel disposed between the other two of said three channel portions; a first pair of said four flanges spaced apart and forming first channel sides and common dividers between said intermediate channel portion and said other two channel portions; a second pair of said four flanges forming second sides for said other two channel portions; said first pair of flanges disposed at opposite sides of said studding members; a web of said channel member disposed between said first pair of flanges, said web having openings therethrough in which said studding members extend and in which they are laterally supported lath means adjacent said studding members and one of said first pair of flanges; wall plaster parallel with and adjacent to said lath means and one of said second pair of flanges; and ceiling plaster abutting to the outer surface of one of said second pair of flanges; said channel member being formed of single piece metal, said first pair of flanges comprising folded portions of said piece of metal.
flanges; wall plaster parallel with and adjacent to said lath means and one of said second pair of flanges; and ceiling plaster abutted to the outer surface of one of said second pair of flanges; metal strips compressively wedged between each lath means and a respective one of said second pair of flanges to hold said lath means in position during plastering.

6. In a means for isolating plaster wall and ceiling junctures the combination of: a building structure comprising upright partition walls and a ceiling; substantially vertical stud members having upper and lower ends in and between opposite sides of said walls; a channel member disposed at substantially right angles to said stud and engaging the upper ends thereof; three substantially U-shaped channel portions of said channel member being open in a downward direction and having four downwardly extending flanges in the same direction; and ceiling supporting structure suspending said channel member one of said channel portions being an intermediate channel disposed between the other two of said three channel portions; a first pair of said four flanges spaced apart and forming first channel sides and common dividers between said intermediate channel portion and said other two channel portions; a second pair of said four flanges forming second sides for said other two channel portions; said floor portions of flanges disposed at opposite sides of said stud members; a web of said channel member disposed between said first pair of flanges, said web having openings therethrough in which said stud members extend and in which they are laterally supported lath means adjacent stud members and one of said first pair of flanges; wall plaster parallel with and adjacent to said lath means and one of said second pair of flanges; and ceiling plaster abutted to the outer surface of one of said second pair of flanges; a sheet metal base structure for said stud members comprising downwardly covering sheet metal portions between which said lower ends of said stud members are disposed and on which the lower portions of said lath and plaster are supported adjacent said stud members, said base structure having a bottom portion resting on a floor and supporting said downwardly converging portions, said downwardly converging portions having openings in which lower portions of said stud members are disposed and held; vertical walls of said base structure extending upwardly from said bottom thereof and coupled to the uppermost portions of said downwardly converging portions; said vertical walls portions being disposed below said wall plaster and forming a board structure adjacent the bottom of said base structure and extending upwardly from which it rests.

7. In a means for isolating plaster wall and ceiling junctures the combination of: a building structure comprising upright partition walls and a ceiling; stud members in and between opposite sides of said walls; a channel member disposed at substantially right angles to said stud and engaging the upper ends thereof; three substantially U-shaped channel portions of said channel member being open in a downward direction and having four downwardly extending flanges in the same direction; and ceiling supporting structure suspending said channel member one of said channel portions being an intermediate channel disposed between the other two of said three channel portions; a first pair of said four flanges spaced apart and forming first channel sides and common dividers between said intermediate channel portion and said other two channel portions; a second pair of said four flanges forming second sides for said other two channel portions; said floor portions of flanges disposed at opposite sides of said stud members; a web of said channel member disposed between said first pair of flanges, said web having openings therethrough in which said stud members extend and in which they are laterally supported lath means adjacent stud members and one of said first pair of flanges; wall plaster parallel with and adjacent to said lath means and one of said second pair of flanges; and ceiling plaster abutted to the outer surface of one of said second pair of flanges; said channel member having a web portion between the flanges of said first pair.

8. In a means for isolating plaster wall and ceiling junctures the combination of: a building structure comprising upright partition walls and a ceiling; stud members in and between opposite sides of said walls; a channel member disposed at substantially right angles to said stud and engaging the upper ends thereof; three substantially U-shaped channel portions of said channel member being open in a downward direction and having four downwardly extending flanges in the same direction; and ceiling supporting structure suspending said channel member one of said channel portions being an intermediate channel disposed between the other two of said three channel portions; a first pair of said four flanges spaced apart and forming first channel sides and common dividers between said intermediate channel portion and said other two channel portions; a second pair of said four flanges forming second sides for said other two channel portions; said floor portions of flanges disposed at opposite sides of said stud members; a web of said channel member disposed between said first pair of flanges, said web having openings therethrough in which said stud members extend and in which they are laterally supported lath means adjacent stud members and one of said first pair of flanges; wall plaster parallel with and adjacent to said lath means and one of said second pair of flanges; and ceiling plaster abutted to the outer surface of one of said second pair of flanges; said channel member having a web portion between the flanges of said first pair.
the bottom of said base structure and a floor upon which it rests; said downwardly converging openings disposed to receive plaster when applied to said lath means for anchoring said plaster to said base and providing acoustical insulation of said base.

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